The Australian Wine Research Institute

Fact Sheet
VITICULTURE

Managing smoke-affected vineyards where fruit is not harvested for winemaking

Background

The exposure of vineyards and grapes to smoke may result in wines with undesirable sensory characteristics, such as 'smoky', 'burnt', 'bacon', 'medicinal' or 'ash', commonly described as 'smoke tainted'. Analysis of grapes approximately two weeks prior to harvest maturity can confirm whether or not a vineyard has been affected by smoke. If high levels of smoke markers are found in grapes, growers may choose not to harvest those blocks for winemaking. Once the decision not to pick has been made, there are a number of factors that should be considered in managing the block, to maximise its potential for the following season. It is important to note that there is no risk of carry-over of smoke taint from one season to the next.

Deciding whether or not to remove unwanted fruit from vines early

A key decision to be made when managing a smoke-affected vineyard is whether or not to remove the fruit early or leave it on the vine until pruning. It may be tempting to avoid the up-front cost of fruit removal; however, early fruit removal is likely to be the most cost-effective strategy in the long term, for a number of reasons:

- **Disease** – If fruit is left on the vines over winter, this will increase the level of inoculum in the vineyard in the following season, increasing disease risk.

- **Pruning** – When unharvested fruit is left on the vines, extra pruning costs may be incurred . This is due to old bunches obscuring the pruning zone and potentially 'gumming-up' pruning equipment. Bees, wasps and ants can be attracted to rotting bunches and may interfere with hand pruning.
- **Irrigation** – early removal of the crop will reduce vine water demand during the growing season.

Options for unwanted fruit

Removal of unwanted fruit is most economically performed by mechanical harvesting, which can be performed at a higher than usual ground speed. Grapes can be dropped directly onto the ground to decompose or be incorporated into the soil.

Smoke-affected grapes can be used as a source of feed for livestock. It is important to inform the grazier about which agrochemicals were applied to the fruit, as grazing restrictions may apply. Guidelines for the feeding of fruit waste to cattle are available online. One example is from NSW DPI: https://www.dpi.nsw.gov.au/animals-and-livestock/beef-cattle/feed/dangers-feeding-waste-material-livestock

Smoke-affected grapes may also be used for the production of neutral alcohol spirit. Smoke taint glycoside compounds are removed during the distillation process and carbon fining of the resultant distillate removes the free volatiles. The distiller should be made aware of the condition/origin of the grapes.

Key in-season management practices

The following management practices should be considered to maximise the vineyard's potential for the following season.

Irrigation

To maintain future vineyard productivity, it is important to avoid exposing vines to severe water stress. Leaves that are healthy and functioning generate carbohydrates for the following season. Removal of the crop will reduce the vine water demand; however, it is recommended to allocate sufficient water to prolong the retention of healthy leaves throughout the season.

Pest and disease control

Control of pests and diseases is important to maximise leaf area and function until the end of the season. If fungal diseases are allowed to establish and proliferate, disease risk may be higher in the following season due to a build-up of disease inoculum. Growers should continue monitoring for pests and diseases and control as required. The removal of smoke-affected fruit will greatly reduce the risk of *Botrytis* and other secondary moulds and will reduce the need for chemicals.
Unharvested fruit may attract wasps and birds and establish a feeding pattern that may require future management.

As fruit will not be made into wine, agrochemical withholding periods do not apply and alternative products which are usually restricted due to export requirements may be used. In the case of fungicide resistance, this may be an opportunity to reintroduce activity groups that are not typically available.

Nutrition

The autumn period is a critical time for the replenishment of depleted nutrients such as nitrogen, phosphorus and potassium. Ideally, nutrients should be applied to moist soil to facilitate their uptake by vines.

Bird protection

Protecting your grapes from birds is not required for vineyards where the fruit is not being made into wine; however, if birds get used to grapes as a food source they may cause problems in the future.

Canopy management

Canopy management activities including wire-lifting or trimming may be discontinued. However, it is important consider whether there may be any unintended disadvantages from doing this, such as limiting machinery access.

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